



Washington's Greenhouse Gas Reporting Rule

WAC 173-441

October 2009 Workshops

Greenhouse Gas Units

- **Carbon dioxide equivalent (CO₂e):**
 - A common unit for comparing emissions of different greenhouse gases (apples to apples)
 - Uses global warming potential (GWP) to convert
- **Global warming potential (GWP):**
 - How much a gas warms the atmosphere
 - The ratio of the heat trapping ability of each greenhouse gas relative to that of carbon dioxide
- **Example:**
 - 1 MT of CH₄ x 21 GWP = 21 MT CO₂e

Greenhouse Gases



Carbon Dioxide (CO_2)
GWP = 1



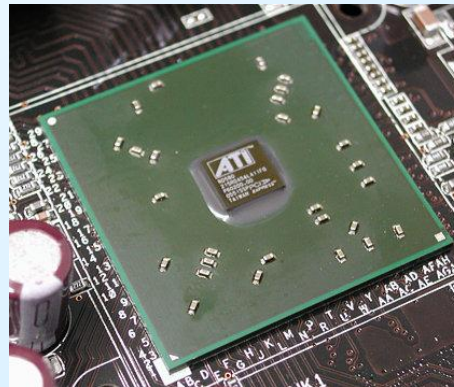
Methane (CH_4)
GWP = 21



Nitrous Oxide (N_2O)
GWP = 310



Hydrofluorocarbons (HFC's)
GWP = 12 – 11,700



Perfluorocarbons (PFC's)
GWP = 6,500 – 9,200



Sulfur Hexafluoride (SF_6)
GWP = 23,900

Direct vs. Indirect Emissions

Direct emissions (Scope 1):

- Combustion of fuels:
 - Boilers
 - Fleet tailpipe emissions
 - Carbon dioxide, methane, nitrous oxide
- Process emissions:
 - Lime
 - Cement
- Fugitive emissions:
 - Refrigerant leaks from air conditioning or refrigeration units

Only direct emissions count towards triggering the threshold

Indirect emissions (Scope 2):

- Associated with the purchase of electricity, heating, cooling, or steam

Reporting Thresholds

- Source or combination of sources
= 10,000 MT CO₂e (25,000 MT CO₂e in 2009)
 - Stationary sites
 - Marine vessels
 - Rail equipment
 - Aircraft (instate flights only starting in 2012)

- Fleets of on-road motor vehicles = 2,500 MT CO₂e

Fuel Use to Trigger Sites and Nonroad Mobile Sources Threshold

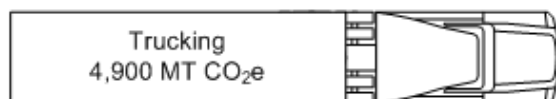
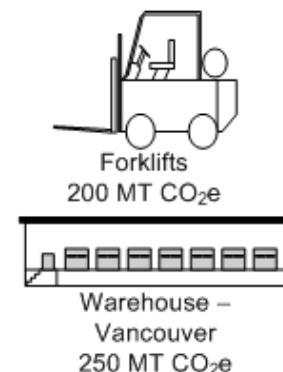
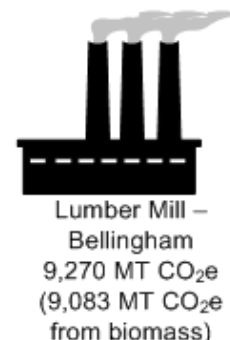
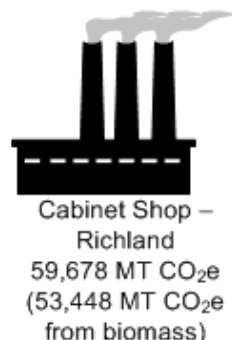
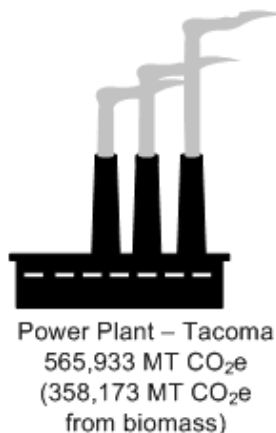
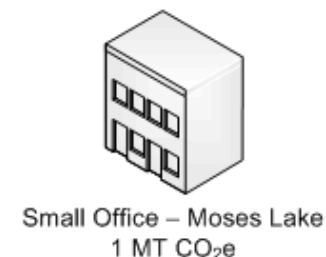
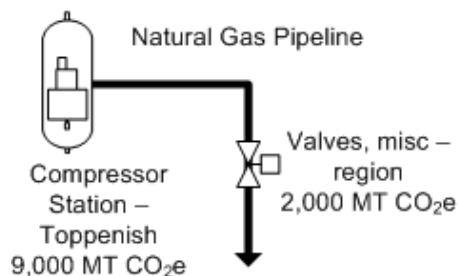
Fuel Type	Approximate Fuel to Meet Threshold 10,000 MT CO _{2e} (2010+)	Approximate Fuel to Meet Threshold 25,000 MT CO _{2e} (2009)	Units / yr
Natural Gas	180,000,000	457,000,000	Cubic feet
Bituminous Coal	4,400	11,100	Tons
Wood	5,700	14,400	Tons
Residual oil (#6)	846,000	2,100,000	Gallons
Diesel	980,000	2,460,000	Gallons
Gasoline	1,120,000	2,800,000	Gallons
Jet fuel	1,000,000	2,500,000	Gallons



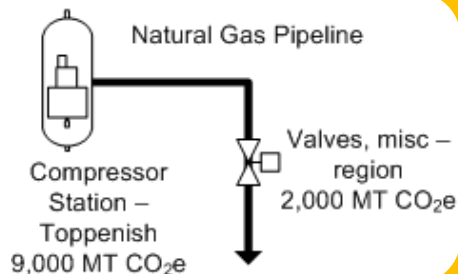
Fuel Use to Trigger 2,500 MT On-Road Threshold

Fuel Type	Estimated Fuel to Meet Threshold (gal/yr)
Gasoline	280,000
Diesel	240,000

Company X – Organization



Company X – Reporting Groups (2010 – 2011)



Stationary sources report as individual sites



Fruit Juice Concentrator – Toppenish
24,700 MT CO₂e



Power Plant – Tacoma
565,933 MT CO₂e
(358,173 MT CO₂e from biomass)



Cabinet Shop – Richland
59,678 MT CO₂e
(53,448 MT CO₂e from biomass)



Lumber Mill – Bellingham
9,270 MT CO₂e
(9,083 MT CO₂e from biomass)



Forklifts
200 MT CO₂e



Warehouse – Vancouver
250 MT CO₂e

Mobile sources report as statewide fleets



Passenger Cars
1,188 MT CO₂e



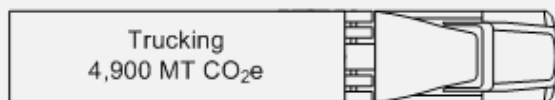
Rail Equipment
12,000 MT CO₂e



Marine Vessels
23,822 MT CO₂e

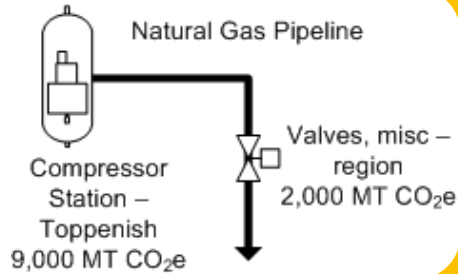


Aircraft
3,000 MT CO₂e

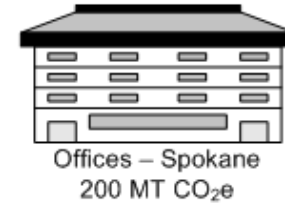


Trucking
4,900 MT CO₂e

Company X – Applying Threshold (2010 – 2011)



$\geq 10,000$ MT CO₂e
*2009: $\geq 25,000$ MT CO₂e



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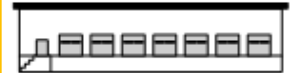
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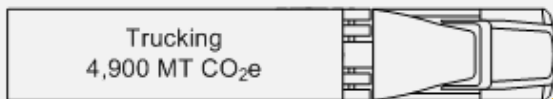


Warehouse – Vancouver
250 MT CO₂e

$\geq 2,500$ MT CO₂e



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Only direct emissions count towards thresholds



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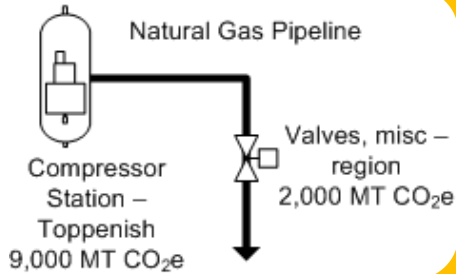


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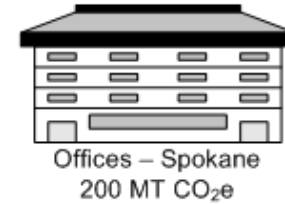


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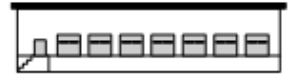
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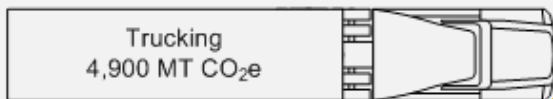


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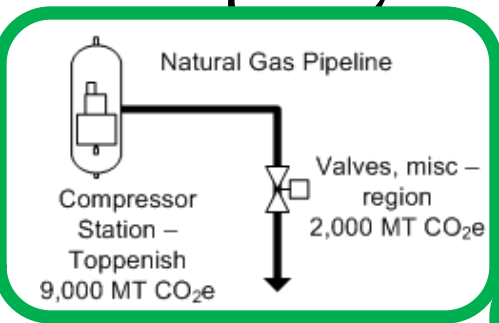


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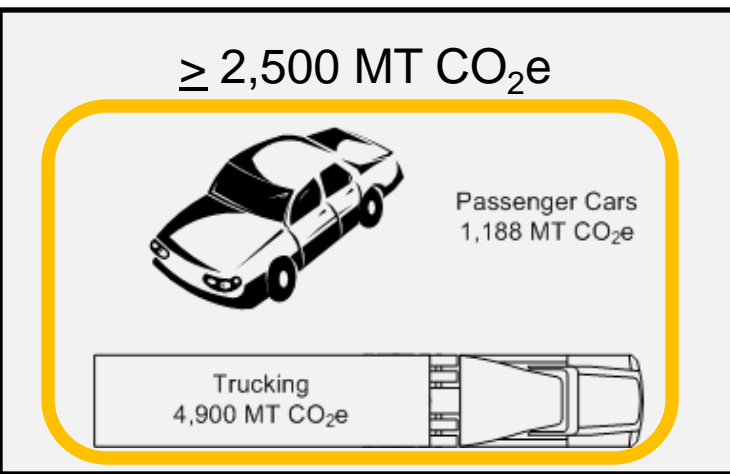
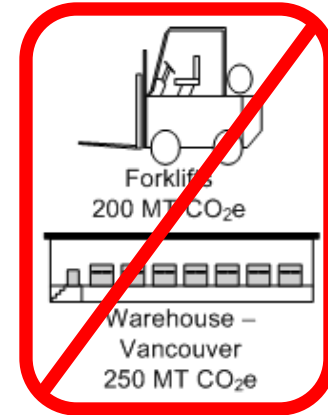
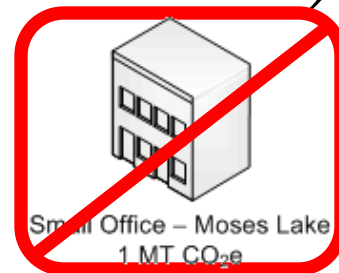
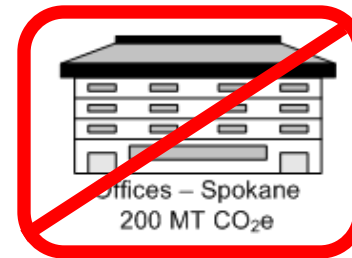
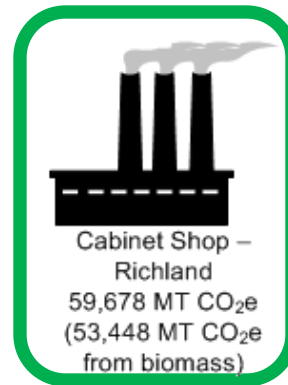
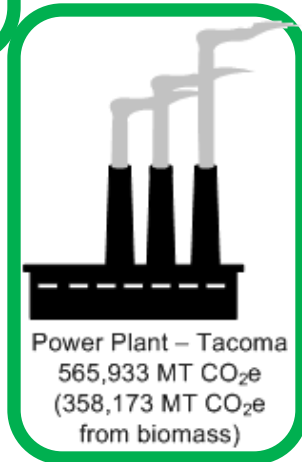
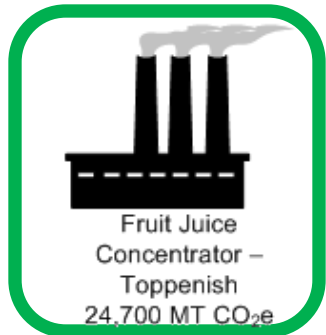


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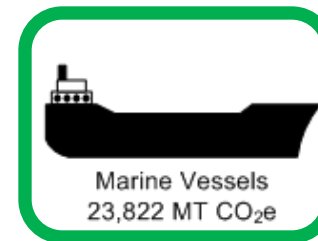
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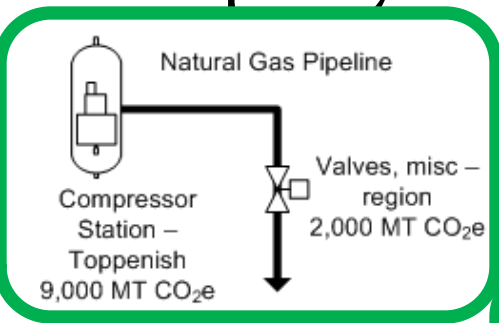
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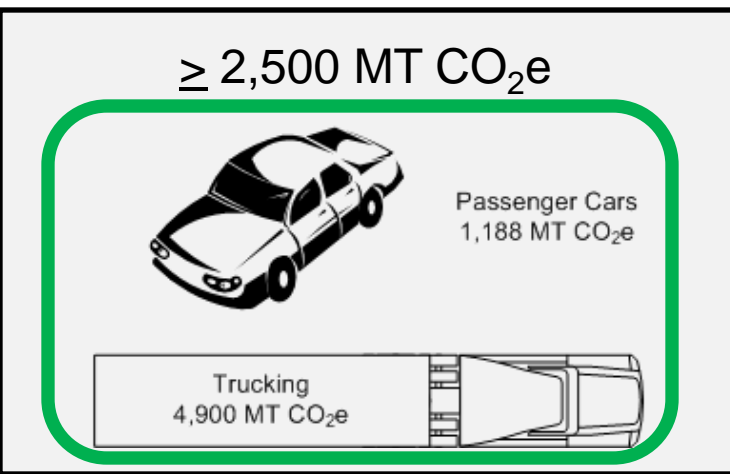
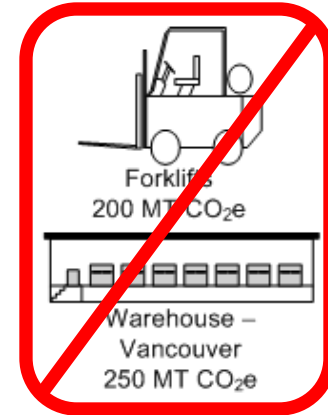
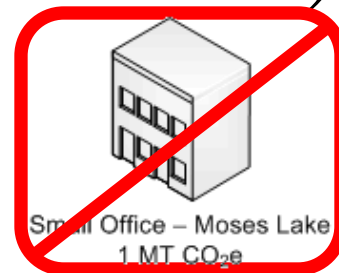
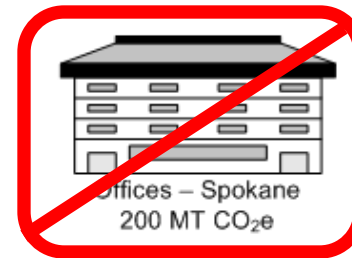
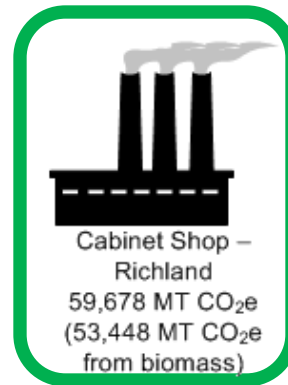
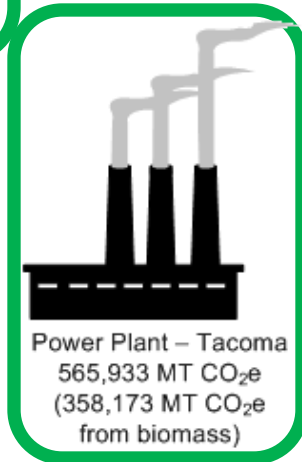
Only direct emissions count towards thresholds



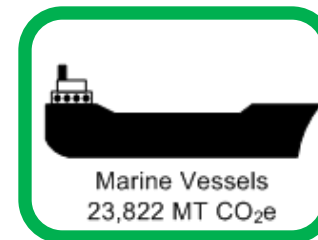
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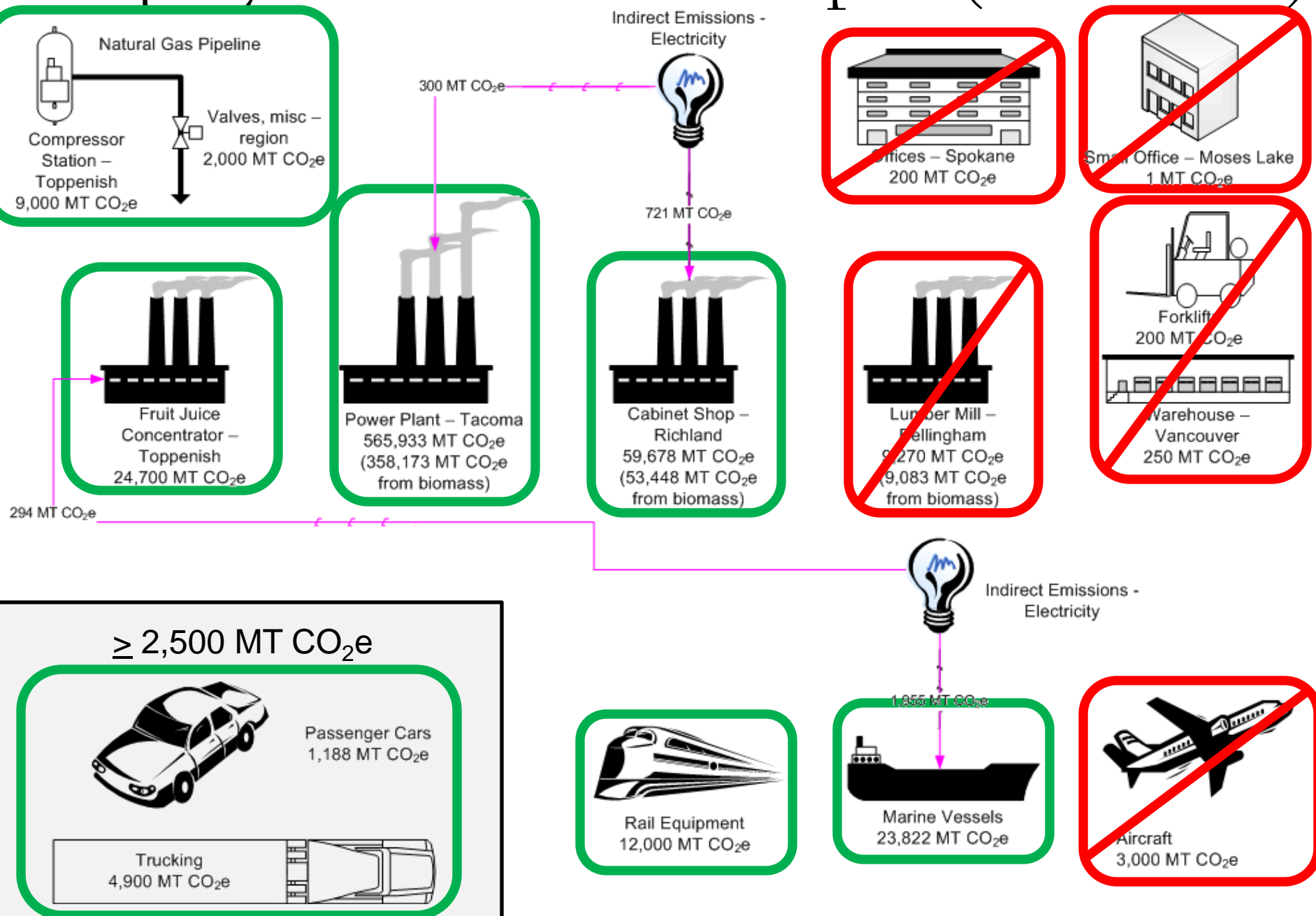
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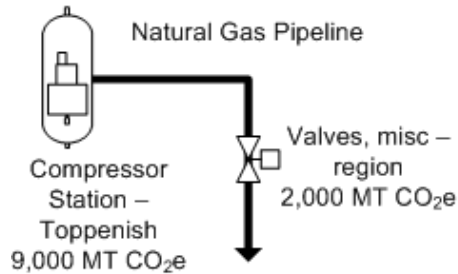
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Company X – Emissions to Report (2010 – 2011)

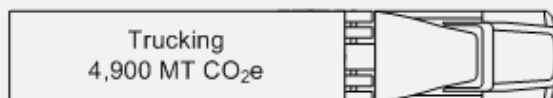
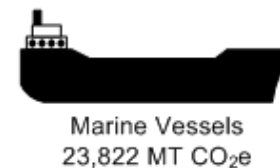
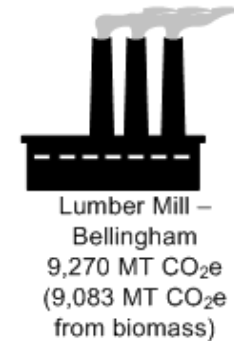
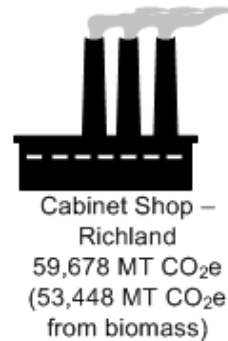
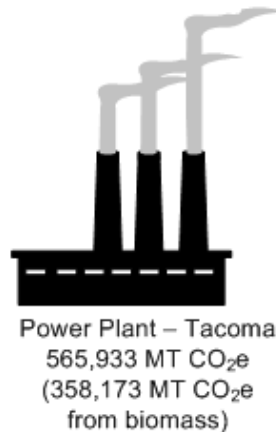
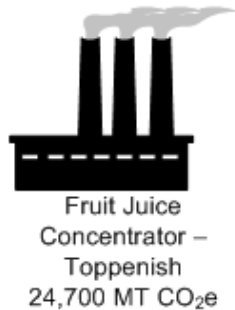
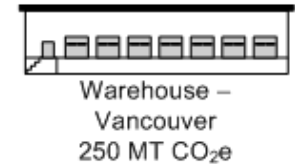
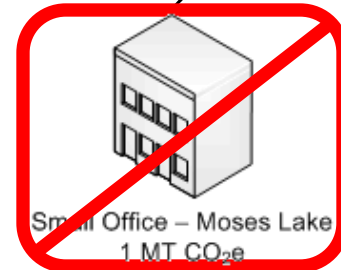


Company X – Reporting Groups (2012+)

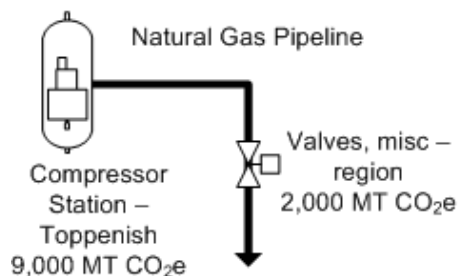


Do not report:

- sites < 5 MT CO₂e
- off-road mobile sources



Company X – Reporting Groups (2012+)



Combine direct emissions from all stationary and non-road mobile sources



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Offices – Spokane
200 MT CO₂e



~~Small Office – Moses Lake
1 MT CO₂e~~



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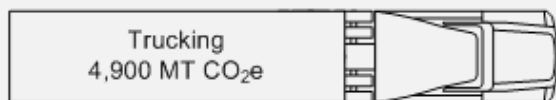
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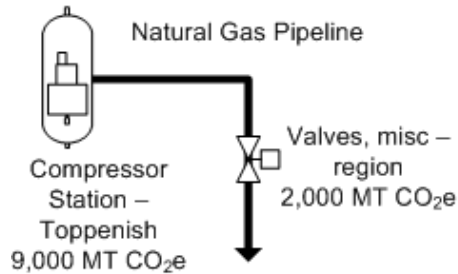


Aircraft
3,000 MT CO₂e



Trucking
4,900 MT CO₂e

Company X – Applying Threshold (2012+)



≥ 10,000 MT CO₂e



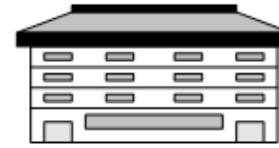
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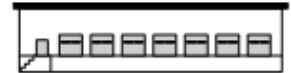
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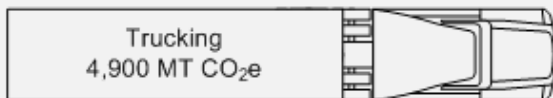
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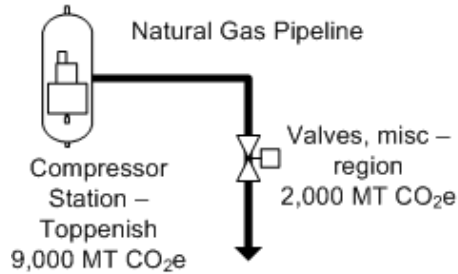


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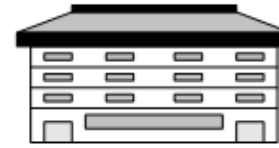
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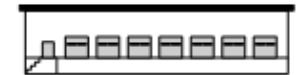
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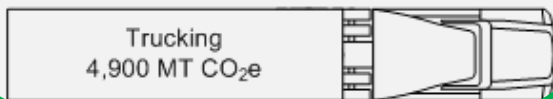


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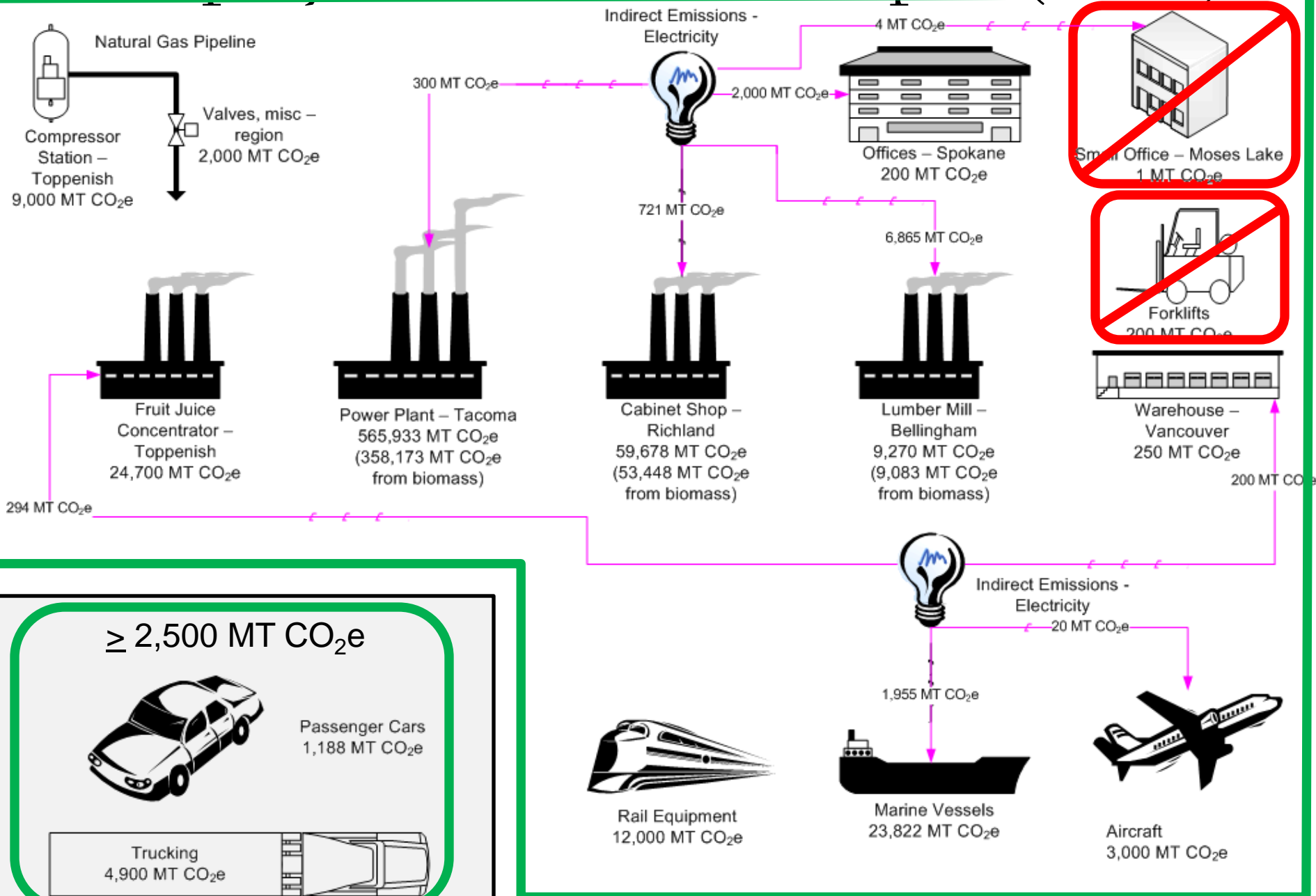


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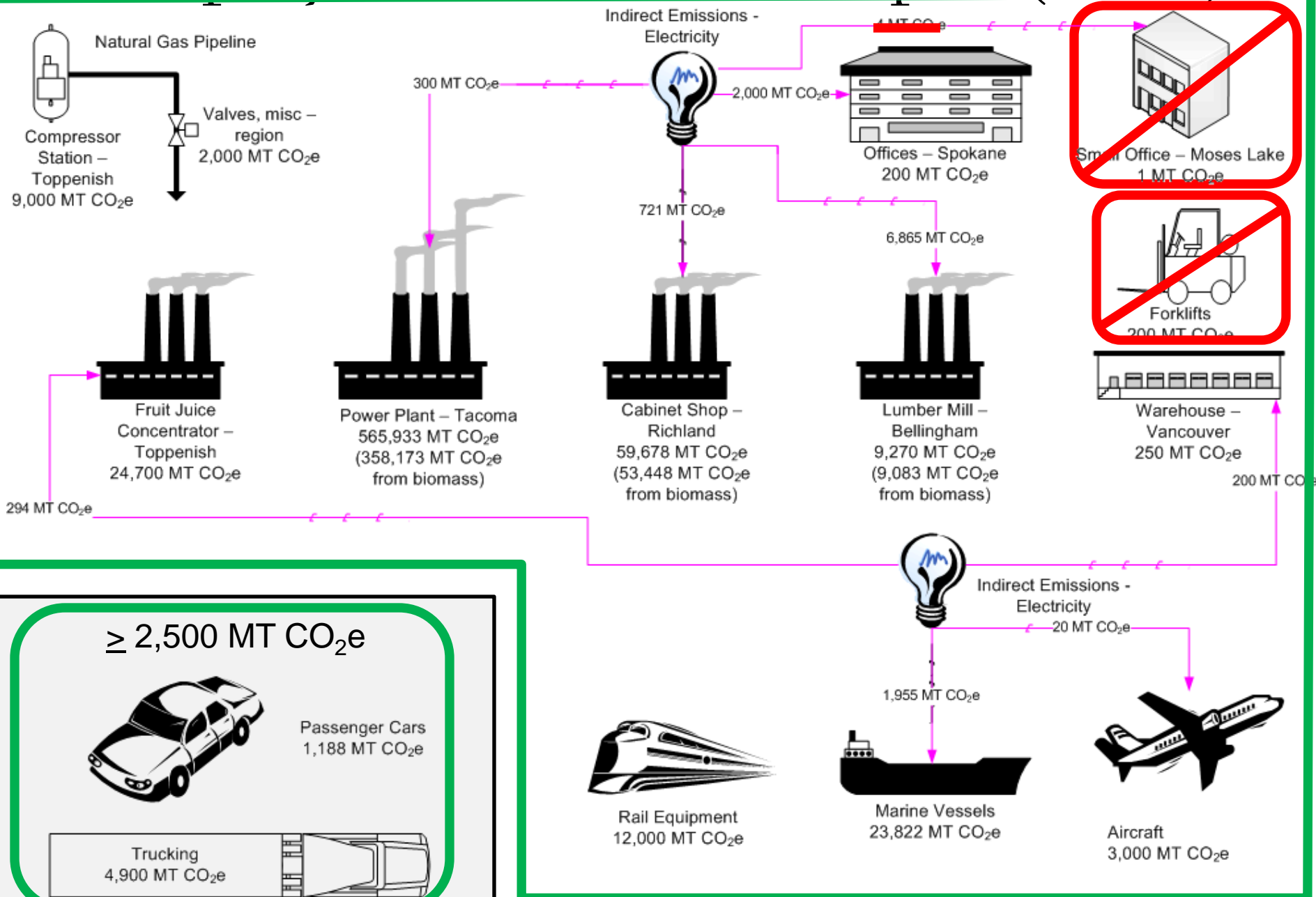


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Company X – Emissions to Report (2012+)



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Questions?